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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,510	07/29/2003	Senthil Govindaswamy	000172	7894

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QUALCOMM INCORPORATED  
5775 MOREHOUSE DR.  
SAN DIEGO, CA 92121

EXAMINER
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DANG, DUY M

ART UNIT	PAPER NUMBER
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2624

NOTIFICATION DATE	DELIVERY MODE
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07/16/2007

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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nanm@qualcomm.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/630,510	<b>Applicant(s)</b> GOVINDASWAMY ET AL.	
	<b>Examiner</b> Duy M. Dang	<b>Art Unit</b> 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 29 July 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 13-24, 27 and 30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12, 25, 26, 28 and 29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 April 2007 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/9/04</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Election/Restriction*

1. Applicant's election without traverse of Species I, Claims 1-12, 26, and 29 in the reply filed on April 24, 2007 is acknowledged. It is also noted that Applicants have agreed with the examiner that claims 25 and 28 are generic claims.
2. Amendment filed on April 24, 2007 to withdraw claims 13-24, 27, and 30 has been entered and made of record.

### *Drawings*

3. The drawings were received on April 24, 2007. These drawings are acceptable.
4. The drawings are objected to under 37 CFR 1.83(a) because they fail to show the processor adjusts the second set of parameters and outputs a third set of parameters as a second set of parameters and means for adjusting the second set of parameters to generate a third set of parameter, and means for outputting the third set of parameters as the second set of parameters as described in the specification at page 2 paragraph [0008] and page 3 paragraph [00010] respectively. Particularly, the so-called "third set of parameter" (singular) and "third set of parameters" (plural) are not shown in the present drawings. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure

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must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

5. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the recitations recited at last five lines of each of claims 2, 26, and 29 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. Specifically, the so-called "third set of parameters" and "output a third set of parameters as the second set of parameters" must be shown in the drawings.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

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application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

6. The disclosure is objected to because of the reasons as follows:

The languages presented at (a)page 2 paragraph [00008] that of “*The processor outputs a second set of parameters and second image processor compresses the digital information using the second set of parameters. The processor adjusts the second set of parameters and outputs a third set of parameters as a second set of parameters*” and (b)page 3 paragraph [00010] that of “*means for adjusting the second set of parameters to generate a third set of parameter, and means for outputting the third set of parameters as the second set of parameters.*” appears to be inconsistent. Clarification is required in response to this Office action with regard to the so called “third set of parameter” (singular), “third set of parameters” (plural), and second set of parameters” (plural), for examples.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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8. Claims 1-8, 10, 25-26, and 28-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Watson (USPN 5,629,780. Art of record, IDS filed on 7/9/04, referred as Watson hereinafter).

Regarding claim 1, Watson teaches an apparatus (see figure 2) comprising: a source generator configured to convert image information into digital image information (see item 30 of figure 2 and column 5 lines 18-22); and an encoder coupled to the source generator (see item 12 of figure 2 functions as the so-called “encoder”), the encoder configured to receive the digital image information from the source generator (see figure 2: note encoder denoted at 12 receives digital image information source 30) and comprising: a parameter generator (i.e., the “quantization matrix optimizer” depicted at 36 of figure 2 refers to the so called “parameter generator”) to output at least a first set of parameters (i.e., the “optimized quantization matrix” inputted to quantizer 38 of figure 2 refers to the so called “first set of parameters”); a first image compressor (see items depicted at 34, 38, and 40 of figure 2) coupled to the parameter generator, the first image compressor to compress the digital image information using the first set of parameters.

Regarding claim 2, Watson further teaches wherein the parameter generator comprises: a second image compressor to compress the digital information using a second set of parameters (see item 56 of figure 3 refers to claimed “second image compressor” and output from any one of items 34, 35, and 66 in figure 2 refers to claimed “second set of parameters”); and a processor coupled to the first and second image compressors (see 90 of figure 4 and column 10 lines 55-67), the processor to output the second set of parameters, the processor to adjust the second set of parameters (see 92 of figure 4) and output a third set of parameters as the second set of

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parameters, if the use of the second set of parameters results in a selected data bit rate, and otherwise, to output the second set of parameters as the first set of parameters (see 90 of figure 4).

Regarding claims 3 and 5, Watson further teaches wherein the parameter generator further comprises: a statistic generator (see item 62 of figure 3) coupled to the processor, the statistic generator configured to generate a statistical analysis (pooled error depicted at 64 of figure 3); and wherein the processor adjusts the second set of parameters based on the statistical analysis (see 64 of figure 3).

Regarding claim 4, Watson further teaches wherein the parameter generator comprises: a processor (see 90 of figure 4) to output the first set of parameters, the processor to adjust the first set of parameters to generate a second set of parameters if the use of the first set of parameters results in a selected data bit rate, and to output the second set of parameters as the first set of parameters.

Regarding claim 6, Watson further teaches wherein the statistical analysis involves analyzing bits per pixel for images (see column 12, lines 43-45).

Regarding claim 7, Watson further teaches wherein the statistical analysis determines the effectiveness of the first set of parameters (see column 9 lines 46-50).

Regarding claim 8, Watson further teaches wherein the first set of parameters includes Q-steps (see 35 of figure 3) and the first image compressor comprises: a transform module to convert the digital image information from spatial to frequency domain, the transform module to generate transform coefficients (see 34 of figure 2: DCT); a quantization module to quantize the transform coefficients using the Q-steps (see 38 of figure 2 and 56 of figure 3); and a variable

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length coding module to compress the quantized transform coefficients (see entropy code depicted at 40 of figure 2).

Regarding claim 10, Watson further teaches wherein the first set of parameters further includes a Huffman code tables (see column 5 lines 25-29) and the variable length coding module includes a Huffman engine to compress the quantized transform coefficients using the Huffman code tables (see column 5 lines 25-29).

Regarding claims 25 and 28, Watson teaches an apparatus for encoding digital image information (the representation of figure 2 refers to “an apparatus for encoding digital image information”) see comprising: means for outputting at least a first set of parameters (see “optimized quantization matrix” inputted to quantizer 38 of figure 2. This refers to the so called “first set of parameters”); and first means for compressing the digital image information using the first set of parameters (see quantizer 38 and entropy code 40 included in coder/compressor 12 of figure 2).

Regarding claims 26 and 29, these claims are also rejected for the same reasons as applied to claim 2 above.

### ***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watson.

The advanced statements set forth in paragraphs 7-8 above are incorporated herein.



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Regarding claim 12, Watson fails to teach wherein the digital image information is at least a portion of a film. However, Watson does teach image as a digital file containing pixel data (see column 5 line 21), television systems, and “original image 30 is received from a scanner” (see col. 5 lines 17-19). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a portion of a film in Watson’s image.

The motivation/suggestion for doing so would have been because film has been an industry standard image recording medium and is compatible with Watson’s invention.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use at least a portion of a film as digital image information to obtain the invention as specified in claim 12.

11. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watson as applied to claims 1 and 8 above, in view of Pian et al. (US Publication No. 2002/0021754 A1, referred as Pian hereinafter).

Regarding claim 9, Watson fails to further teaches wherein the first set of parameters further includes frequency weight mask (FWM) tables and the quantization module to quantize the transform coefficients using FWM tables and Q-steps.

Pian teaches parameters including frequency weight mask tables (see paragraphs [0034] to [0036]) and quantizing transform coefficients using FWM tables (see paragraph [0037]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate Pian’s FWM into Watson’s matrices (see items 35 and 66 of figure 3 and 84 of figure 4).

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Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the frequency weight mask tables into the first set of parameters and quantize the transform coefficients using FWM tables and Q-steps, as specified in claim 9, in order to better control the encoded data rate in video compression (see Pian, paragraph [0011]).

12. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watson as applied to claims 1 and 8 above, in view of Lee et al. (USPN 5,576,767. Art of record, IDS filed on 7/9/04, referred as Lee hereinafter).

Regarding claim 11, Watson fails to teach wherein the first set of parameters further includes an adaptive block size discrete transform (ABSDCT) threshold and the transform module comprises an ABSDCT module to convert the digital image information from spatial to frequency domain using ABSDCT according to the ABSDCT threshold.

Lee teaches ABSDCT as a replacement for DCT (see column 7 lines 37-38 and column 4 lines 20-27), parameters including an ABSDCT threshold (cost function mentioned at column 7 line 60), and converting digital information from spatial to frequency domain using ABSDCT according to the ABSDCT threshold (see figures 6-7).

Therefore, it would have been obvious to one of ordinary skill in the art to incorporate Lee's teachings into Watson. The motivation/suggestion for doing so would have been to provide an improved method for compressing image data for transmission and for reconstruction of the image data upon reception by encoding high precision reproduction of pixel data at a minimum transmission data rate (see column 2 lines 33-40 of Lee).

***Conclusion***

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Duy M. Dang whose telephone number is 571-272-7389. The examiner can normally be reached on Monday to Friday from 6:00AM to 2:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eileen D. Lillis can be reached on 571-272-6928. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

dmd  
7/07

  
**DUY M. DANG**  
**PRIMARY EXAMINER**